Translation

PATENT COOPERATION TREATY

PCT/FR2003/003024

PCT

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference I/ND/CC	FOR FURTHER ACTION	See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)
International application No. PCT/FR2003/003024	International filing date (*day/month/year*) 14 octobre 2003 (14.10.2003)	Priority date (*day/month/year*) 15 octobre 2002 (15.10.2002)
International Patent Classification (IPC) or national classification and IPC A01K 67/027		
Applicant FRANCE HYBRIDES		

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.

2. This REPORT consists of a total of 5 sheets, including this cover sheet.

☐ This report is also accompanied by ANNEXES, i.e., sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

These annexes consist of a total of _____ sheets.

3. This report contains indications relating to the following items:

- I ☒ Basis of the report
- II ☐ Priority
- III ☐ Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- IV ☐ Lack of unity of invention
- V ☒ Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- VI ☐ Certain documents cited
- VII ☐ Certain defects in the international application
- VIII ☐ Certain observations on the international application

Date of submission of the demand	Date of completion of this report
11 mai 2004 (11.05.2004)	15 October 2004 (15.10.2004)
Name and mailing address of the IPEA/EP Facsimile No.	Authorized officer Telephone No.

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.
PCT/FR2003/003024

I. Basis of the report

1. With regard to the elements of the international application:*

☐ the international application as originally filed

☒ the description:
pages 1-28, as originally filed
pages _____, filed with the demand
pages _____, filed with the letter of _____

☒ the claims:
pages 1-9, as originally filed
pages _____, as amended (together with any statement under Article 19
pages _____, filed with the demand
pages _____, filed with the letter of _____

☒ the drawings:
pages 1-9, as originally filed
pages _____, filed with the demand
pages _____, filed with the letter of _____

☒ the sequence listing part of the description:
pages 1/3-3/3, as originally filed
pages _____, filed with the demand
pages _____, filed with the letter of _____

2. With regard to the **language**, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.
These elements were available or furnished to this Authority in the following language _____ which is:

☐ the language of a translation furnished for the purposes of international search (under Rule 23.1(b)).

☐ the language of publication of the international application (under Rule 48.3(b)).

☐ the language of the translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).

3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

☐ contained in the international application in written form.

☐ filed together with the international application in computer readable form.

☐ furnished subsequently to this Authority in written form.

☐ furnished subsequently to this Authority in computer readable form.

☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.

☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. ☐ The amendments have resulted in the cancellation of:

☐ the description, pages _____

☐ the claims, Nos. _____

☐ the drawings, sheets/fig _____

5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).**

* *Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rule 70.16 and 70.17).*

** *Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.*

V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Claims	1-8	YES
	Claims	9	NO
Inventive step (IS)	Claims	-	YES
	Claims	1-8	NO
Industrial applicability (IA)	Claims	1-9	YES
	Claims	-	NO

2. Citations and explanations

Reference is made to the following documents:

D1: WO 98/25967 A (GENENTECH INC) 18 June 1998 (1998-06-18);

D2: MILNE R S ET AL: "Porcine HveC, a member of the highly conserved HveC/nectin 1 family, is a functional alphaherpesvirus receptor." VIROLOGY. UNITED STATES 15 MARCH 2001, vol. 281, no. 2, 15 march 2001 (2001-03-15), pages 315-328, XP002247513 ISSN: 0042-6822.

1. Novelty (PCT Article 33(2))

Claim 9 lacks novelty because genetic material derived from a transgenic mammal does not necessarily contain the genetic changes generated by the method of transgenesis. Claims 4-8, on which claim 9 is dependent, do not mention the homo- or heterozygosity of transgenic mammals. As a result, claim 9 includes genetic materials that are identical to the genetic materials of mammals that have not been genetically modified.

2. **Inventive step (PCT Article 33(3))**

Document D1 describes the construction of chimeric proteins containing the HVEM extracellular domain and a crystallisable fragment of an immunoglobulin (Fc). Mention is also made of constructing transgenic mammals containing said chimeric protein and testing the resistance of said mammals to viral infections, for example, HSV (page 23, lines 7-17). In the present application, the difference lies in the identity of the extracellular domain (HVEM in one case, HveC in the other). The effect resulting from this difference is that it is possible to vaccinate simultaneously against infections caused by alpha herpes viruses HSV1, PRV and BHV-1. The problem addressed by this difference can be expressed as being that of providing a transgenic mammal which has been rendered resistant to infections by alpha herpes viruses HSV1, PRV and BHV-1. This problem is solved in the present application by using a chimeric protein containing the HveC extracellular domain.

Nevertheless, this solution cannot be considered to be inventive.

Document D2 describes soluble HveC fragments and the affinity thereof to the HSV-1 and PrV viruses. Moreover, it mentions that HveC can be used as a receptor for a plurality of alpha herpes viruses (HSV-1, HSV-2, PrV and BHV-1; page 315, left-hand column). D2 also mentions that the HVEM receptor is one of the receptors of the alpha herpes virus (page 315, left-hand column). As a result, it would be obvious for a person skilled in the art that the

soluble HveC fragment could replace the soluble HVEM fragment in the chimeric protein of document D1.

It follows that the subject matter of claims 1-8 is not considered to be inventive (PCT Article 33(3)).